Amendments to the Claims:

This listing of claims replaces all prior versions of the claims.

Listing of Claims:

1. (original) A video decoding method for predicting a current block of a picture comprising:

storing at least one previous product in a memory, wherein the previous product corresponds to a block of a plurality of blocks of the picture, and the previous product is the product of a quantized AC coefficient and a quantization scale of the block that the previous product corresponds to;

determining which block to use as a prediction block from the plurality of blocks;

reading from the memory at least one previous product corresponding to the prediction block; and

calculating at least one quantized AC coefficient of the current block using the at least one previous product read from the memory.

2. (original) The method of claim 1 wherein each quantized AC coefficient is a discrete cosine transform coefficient corresponding to a quantization operation.

3. (original) The method of claim 1 wherein the at least one previous product is generated during an inverse quantization operation of the block to which the previous product corresponds.

4. (currently amended) The method of claim 3 wherein each quantized AC coefficient is the quantized AC coefficient QF[v][u] corresponding to the indexes [v, u], the quantization scale is the quantization scale QP, and the ~~methodfurther~~ method further comprises: transforming the quantized AC coefficient QF[v][u] into a second order intermediate coefficient F''[v][u] during the inverse quantization

operation using one of the following operation equations:

(a). a first quantization method:

$$F''[v][u] = \begin{cases} 0, \text{if } QF[v][u] = 0 \\ ((2 \times MP[v][u] + k \times QP) \times W[w][v][u]) / 16, \text{if } QF[v][u] \neq 0 \end{cases}$$

$$\text{wherein } k = \begin{cases} 0 & , \text{ intra block} \\ Sign(QF[v][u]) & , \text{ non - intra block} \end{cases}$$

wherein the index w of the weighted matrix W[w][v][u] is equal to 0 or 1, the values corresponding to an intra coded block and a non-intra coded block respectively, and the function Sign(x) is defined as follows:

$$Sign(x) = \begin{cases} 1, & x >= 0 \\ -1, & x < 0 \end{cases}$$

; or

(b). a second quantization method:

$$|F''[v][u]| = \begin{cases} 0, & \text{if } QF[v][u] = 0 \\ (2 \times |MP[v][u]| + QP), & \text{if } QF[v][u] \neq 0 \text{ and QP is odd} \\ (2 \times |MP[v][u]| + QP) - 1, & \text{if } QF[v][u] \neq 0 \text{ and QP is even} \end{cases}$$

$$F''[v][u] = Sign(QF[v][u]) \times |F''[v][u]|$$

wherein the product MP[v][u] = QF[v][u] * QP, the at least one previous product is a sub set of the products MP[v][u] with the indexes [v, u] varied, and the function Sign(x) is defined as follows:

$$Sign(x) = \begin{cases} 1, & x >= 0 \\ -1, & x < 0 \end{cases}$$

.

5. (original) The method of claim 1 wherein when the block determined to be used as the prediction block is outside a boundary of either a video object plane or a video packet corresponding to the picture, the method directly resets a prediction term of the quantized AC coefficient of the current block as zero to calculate the quantized

AC coefficient of the current block rather than reading the at least one previous product of the prediction block from the memory.

6. (original) The method of claim 1 wherein the prediction block is a left adjacent block or an upper adjacent block of the current block.

7. (original) The method of claim 6 wherein when the prediction block is a left adjacent block of the current block, the memory is a register of a pipeline-based circuit.

8. (original) The method of claim 1 wherein each quantized AC coefficient is the quantized AC coefficient QF[v][u] corresponding to the indexes [v,u], and the quantization scale is the quantization scale QP.

9. (original) The method of claim 8 wherein when the prediction block is a left adjacent block (A) of the current block, the at least one previous product read is a product $MP_A[v] = QF_A[v][0] * QP_A$ corresponding to the left adjacent block, wherein $QF_A[v][0]$ is a first column quantized AC coefficient of the left adjacent block (A) and QP_A is a quantization scale of the left adjacent block (A); and when the prediction block is a upper adjacent block (C) of the current block, the at least one previous product read is a product $MP_C[u] = QF_C[0][u] * QP_C$ corresponding to the upper adjacent block, wherein $QF_C[0][u]$ is a first row quantized AC coefficient of the upper adjacent block (C) and QP_C is a quantization scale of the upper adjacent block (C).

10. (original) The method of claim 9 wherein when the prediction block is a left adjacent block of the current block, the quantized AC coefficient $QF_X[v][0]$ of the current block (X) equals to $PQF_X[v][0] + MP_A[v]//QP_X$, wherein $QF_X[v][0]$ is a first column quantized AC coefficient of the current block (X); when the prediction

block is an upper adjacent block (C) of the current block, the quantized AC coefficient QF_X [0][u] of the current block (X) equals to PQF_X [0][u] + MP_C[u]//QP_X , wherein QF_X [0][u] is a first row quantized AC coefficient of the current block (X); and the quantization scale QP_X is a quantization scale of the current block, PQF_X [v][0] and PQF_X [0][u] are inverse scan calculation results generated during a previous stage decoding process of the current block, and the operator // denotes a division operation with the result thereof rounded to the nearest integer.

11. (original) The method of claim 10 wherein the calculating step further comprises: calculating at least one first column quantized AC coefficient QF_X[v][0] or at least one first row quantized AC coefficient QF_X[0][u] of the current block using the at least one previous product MP_A[v] or MP_C[u] read; the method further comprises:

performing a saturation operation of the quantized AC coefficient QF [v][u], so the quantized AC coefficient QF [v][u] of the current block can be saturated in a predetermined numerical interval.

12. (original) The method of claim 1 wherein the calculating step further comprises: calculating at least one first column quantized AC coefficient or at least one first row quantized AC coefficient of the current block using the at least one previous product read; the method further comprises:

performing a saturation operation of the quantized AC coefficient, so the quantized AC coefficient of the current block can be saturated in a predetermined numerical interval.

13-20. (Cancelled)